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| 31561 | 7590 | 02/07/2008 | EXAMINER | |
| JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE | | | PIZIALI, JEFFREY J | |
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| TAIPEI, 100 | | | | |
| TAIWAN | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USA@JCIPGROUP.COM.TW

| | | |
|------------------------------|-----------------|---------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/708,198 | LIN, CHIAO-JU |
| | Examiner | Art Unit |
| | Jeff Piziali | 2629 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 08 January 2008.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1 and 7-14 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,7 and 9-14 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 01 August 2007 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8 January 2008 has been entered.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

4. The drawings were received on 1 August 2007. These drawings are acceptable.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Regarding claim 1, the phrase "*charge/discharge*" (in line 4) and the phrase "*charges/discharges*" (in line 9) render the claim indefinite because it would be unclear to an artisan whether the phrase means "*charge(s) or discharge(s)*" or whether the phrase means "*charge(s) and discharge(s)*", thereby rendering the scope of the claim unascertainable.

7. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are between "*A driving circuit of a current-driven active matrix organic light emitting diode (AMOLED), comprising an AMOLED pixel... wherein the AMOLED pixel further comprises: an organic light emitting diode (OLED)*" (see lines 1-11). It would be unclear to an artisan whether "*a current-driven active matrix organic light emitting diode (AMOLED)*" (in lines 1-2), "*an AMOLED pixel*" (in line 3), and "*an organic light emitting diode (OLED)*" (in line 11) refer to a single shared and common organic light emitting diode; or rather whether there are a plurality of different and distinct organic light emitting diodes being claimed.

8. Regarding claim 12, the phrase "*charging/discharging*" (in line 12) renders the claim indefinite because it would be unclear to an artisan whether the phrase means "*charging or*

discharging" or whether the phrase means "*charging and discharging*", thereby rendering the scope of the claim unascertainable.

9. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are between "*A method for driving a current-driven active matrix organic light emitting diode (AMOLED) pixel, wherein a pre-charge switch is connected between a gate of a driving thin film transistor of an AMOLED pixel...*" (see lines 1-5). It would be unclear to an artisan whether "*a current-driven active matrix organic light emitting diode (AMOLED) pixel*" (in lines 1-2) and "*an AMOLED pixel*" (in line 5) refer to a single shared and common pixel; or rather whether there are a plurality of different and distinct pixels being claimed.

10. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claim 12 recites the limitation "*the current source*" (in lines 10-11) and the limitation "*stopping charging/discharging*" (in line 12). There is insufficient antecedent basis for these limitations in the claim.

12. Claims 7, 9-11, and 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon rejected base claims.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1 and 9-16 are rejected under 35 U.S.C. 102(b) as being anticipated by *Yumoto (WO/2001/006484 A)*. [Please note: For purposes of this office action, *Yumoto (US 6,859,193 B1)* is relied upon as the English language translation of Yumoto (WO/2001/006484 A).]

Regarding claim 1, Yumoto discloses a driving circuit of a current-driven active matrix organic light emitting diode (see Column 24, Line 60 - Column 25, Line 5), comprising: an AMOLED pixel [Fig. 24; OLED] connected to a current source [Fig. 24; "data"], the current source being used to charge/discharge a capacitor [Fig. 24; C and/or C_d] connected to a gate of a driving thin film transistor [Fig. 24; TFT2], and a gray scale of the AMOLED pixel is determined by a magnitude of a current provided by the current source; and a pre-charge switch [Fig. 24; PRC1] connected to the gate of the driving thin film transistor and a driving power source [Fig. 24; Vdd], for controlling the driving power source to pre-charge the capacitor before the current source charges/discharges the capacitor, wherein the AMOLED pixel further comprises: an organic light emitting diode [Fig. 24; OLED] having an anode and a cathode, the cathode being connected to a first power source [Fig. 24; Vdd]; a first switch [Fig. 24; TFT1]

with one end [Fig. 24; TFT1's gate] connected to the anode of the OLED and another end [Fig. 24; TFT1's drain] connected to a drain of the driving thin film transistor; a second switch [Fig. 24; TFT3] with one end [Fig. 24; TFT3's source] connected to the current source and another end [Fig. 24; TFT3's drain] connected to the drain of the driving thin film transistor; and a third switch [Fig. 24; TFT4] with one end [Fig. 24; TFT4's source] connected to the drain of the driving thin film transistor and another end [Fig. 24; TFT4's drain] connected to the gate of the driving thin film transistor and one end of the capacitor, the other end of the capacitor being connected to a second power source [Fig. 24; electrical ground] (see Column 23, Line 34 - Column 24, Line 7).

Regarding claim 9, Yumoto discloses a negative power source [Fig. 24; Vdd] is used as the driving power source (see Column 23, Line 34 - Column 24, Line 7).

Regarding claim 10, Yumoto discloses a pre-charged voltage level across the capacitor is substantially equal to a threshold voltage [Fig. 25; V_{th1}] of the thin film transistor (see Column 23, Line 40 - Column 24, Line 7).

Regarding claim 11, Yumoto discloses the driving power source comprises two different voltage levels [Fig. 24; positive potential and Fig. 26; negative potential] (see Column 23, Line 34 - Column 24, Line 37).

Regarding claim 12, Yumoto discloses method for driving a current-driven active matrix organic light emitting diode pixel (see Column 24, Line 60 - Column 25, Line 5), wherein a pre-charge switch [Fig. 24; PRC1] is connected between a gate of a driving thin film transistor [Fig. 24; TFT2] of an AMOLED pixel [Fig. 24; OLED] and a driving power source [Fig. 24; Vdd], and a capacitor [Fig. 24; C and/or C_d] is connected to the gate of the driving thin film transistor of the AMOLED pixel, the method comprising the steps of: directly pre-charging the capacitor through the pre-charge switch by using the driving power source; adjusting a gray-scale charging voltage of the capacitor by using the current source [Fig. 24; data]; and stopping charging/discharging the capacitor through the current source to control the AMOLED pixel to enter an illumination stage (see Column 23, Line 34 - Column 24, Line 7).

Regarding claim 13, Yumoto discloses a pre-charged voltage level across the capacitor is substantially equal to a threshold voltage [Fig. 25; V_{th1}] of the thin film transistor (see Column 23, Line 40 - Column 24, Line 7).

Regarding claim 14, Yumoto discloses the driving power source comprises two different voltage levels [Fig. 24; positive potential and Fig. 26; negative potential] (see Column 23, Line 34 - Column 24, Line 37).

Regarding claim 15, Yumoto discloses the first power source is a negative polarity (see Column 23, Line 34 - Column 24, Line 7). Yumoto expressly identifies Vdd as constituting a "negative potential" in Figure 26.

Regarding claim 16, Yumoto discloses the second power source is a positive polarity (see Column 23, Line 34 - Column 24, Line 7).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Yumoto (WO/2001/006484 A)*. [Please note: For purposes of this office action, *Yumoto (US 6,859,193 B1)* is relied upon as the English language translation of Yumoto (WO/2001/006484 A).]

Regarding claim 7, Yumoto discloses the second switch, the third switch, and the pre-charge switch are P-type thin film transistors. In the embodiment illustrated in Figure 24, Yumoto does not expressly disclose using a P-type thin film transistor as the first switch and/or the driving thin film transistor.

However, in other embodiments, Yumoto discloses the driving thin film transistor [Fig. 26; TFT2] being substituted with a P-type thin film transistor (see Column 24, Lines 8-34).

Therefore, it would have been obvious to one having ordinary skill in the art to replace Yumoto's N-type TFTs with P-type TFTs, so as to make a simple transistor substitution, and to improve the constant current properties of the circuitry, while also suppressing leakage current.

Response to Arguments

17. Applicant's arguments filed 8 January 2008 have been fully considered but they are not persuasive.

The applicant contends, "*Yumoto neither explicitly teaches nor implicitly suggests said features which have been encompassed into claim 1 upon entry of the proposed amendments*" (see Page 9 of the Amendment filed 8 January 2008). However, the examiner respectfully disagrees.

Yumoto discloses the newly added claim 1 subject matter of an organic light emitting diode [Fig. 24; OLED] having an anode and a cathode, the cathode being connected to a first power source [Fig. 24; Vdd]; a first switch [Fig. 24; TFT1] with one end [Fig. 24; TFT1's gate] connected to the anode of the OLED and another end [Fig. 24; TFT1's drain] connected to a drain of the driving thin film transistor; a second switch [Fig. 24; TFT3] with one end [Fig. 24; TFT3's source] connected to the current source and another end [Fig. 24; TFT3's drain] connected to the drain of the driving thin film transistor; and a third switch [Fig. 24; TFT4] with one end [Fig. 24; TFT4's source] connected to the drain of the driving thin film transistor and another end [Fig. 24; TFT4's drain] connected to the gate of the driving thin film transistor and one end of the capacitor, the other end of the capacitor being connected to a second power source [Fig. 24; electrical ground] (see Column 23, Line 34 - Column 24, Line 7).

The applicant appears to be arguing here that Yumoto's circuit elements are not "*directly connected*" to each other. However, the applicant has not incorporated such "*direct connection*" subject matter and limitations into the claims at present. There are many different types of

"*connections*" (including, but not limited to, indirect physical type connections and electrical type connections). In such a manner, the circuit elements illustrated in Yumoto's Figure 24 are all clearly connected to one another in one overall electrical circuit.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., *direct physical connection between circuit elements*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The applicant contends, "*The two capacitors C and Cd disclosed by Yumoto are disposed in different locations, and the capacitor Cd is not coupled to the thin film transistor TFT2*" (see Page 9 of the Amendment filed 8 January 2008). However, the examiner respectfully disagrees.

Again, the applicant appears to be arguing here that Yumoto's capacitor [Fig. 24; C and/or Cd] is not "*directly connected*" to the gate of the driving thin film transistor [Fig. 24; TFT2]. However, the applicant has not incorporated such "*direct connection*" subject matter and limitations into the claims at present. There are many different types of "*connections*" (including, but not limited to, indirect physical type connections and electrical type connections). In such a manner, the circuit elements illustrated in Yumoto's Figure 24 are all clearly connected to one another in one overall electrical circuit.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., *direct connection between circuit elements, as well as no more than a single capacitor element*) are not

recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The applicant contends, "*Yumoto fails to teach or disclose at least the technical feature 'directly pre-charging the capacitor through the pre-charge switch by using the driving power source' as claimed in the amended claim 12*" (see Page 10 of the Amendment filed 8 January 2008). However, the examiner respectfully disagrees.

Yumoto discloses an AMOLED pixel [Fig. 24; OLED] is connected to a current source [Fig. 24; data], the current source being used to charge/discharge a capacitor [Fig. 24; C and/or C_d] connected to a gate of a driving thin film transistor [Fig. 24; TFT2], and a gray scale of the AMOLED pixel is determined by a magnitude of a current provided by the current source; and a pre-charge switch [Fig. 24; PRC1] connected to the gate of the driving thin film transistor and a driving power source [Fig. 24; Vdd], for controlling the driving power source to pre-charge the capacitor before the current source charges/discharges the capacitor (see Column 23, Line 34 - Column 24, Line 7).

The applicant appears to be arguing here that Yumoto's pre-charge switch [Fig. 24; PRC1] is not "*directly connected*" to the capacitor [Fig. 24; C and/or C_d]. However, the applicant has not incorporated such "direct connection" subject matter and limitations into the claims at present. There are many different types of "connections" (including, but not limited to, indirect physical type connections and electrical type connections). In such a manner, the circuit elements

illustrated in Yumoto's Figure 24 are all clearly connected to one another in one overall electrical circuit.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., *direct connection between circuit elements*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Either or both of Yumoto's capacitors [Fig. 24; C, Cd], working either independently or in tandem, read on the instantly claimed invention. The applicant appears to be arguing that Yumoto's capacitor [Fig. 24; C] is not "*pre-charged through a direct connection to the pre-charge switch*" [Fig. 24; PRC1]. However, the applicant has not incorporated such "*direct connection*" subject matter and limitations into the claims at present. Furthermore, it would appear Yumoto's capacitor [Fig. 24; Cd] is indeed directly connected to the pre-charge switch [Fig. 24; PRC1].

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., *pre-charging the capacitor wherein the capacitor is directly connected to the pre-charge switch*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jeff Piziali
1 February 2008